ENVIRONMENTAL PROTECTION AGENCY (EPA)
Anaerobic Digestion Cooperative Agreement 2021
EPA-OLEM-ORCR-21-02

i. **Project Title:** Organics to Energy Co-Digestion Feasibility Study (O2E Study)

ii. **Applicant Name:** Monterey One Water (M1W)

iii. **Eligible Entity Type:** Local Government Agency

iv. **Project Type:** Feasibility Study

v. **DUNS Number:** 102772860

vi. **Project Summary:** M1W and its project partner, the Monterey Regional Waste Management District (MRWMD), are public entities who respectively manage wastewater and non-hazardous solid wastes. The O2E Study will evaluate the conversion of existing anaerobic digesters at M1W's wastewater treatment facility to co-digest sewage sludge with food and other organic wastes diverted from MRWMD. The objective of the Study is to identify strategies for using food waste and organic materials to 1) optimize un-used assets to increase the use of anaerobic digestion; 2) expand biogas generation for productive use; and 3) support federal and state initiatives to create a cleaner, safer environment.

vii. **Contact Information:** Yohana Vargas, Grants/Management Analyst
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viii. **Project Location:** Monterey Regional Environmental Park
14201 and 14811 Del Monte Blvd
Monterey County, CA 93933

ix. **Total Project Cost:** $313,692.10

x. **EPA Funding Requested:** $169,054.35

xi. **Project Period:** March 2022 – October 2022

xii. **Program Objective Elements:**
Expand existing anaerobic digestion capacity for processing food waste:
- Expand an existing partnership to maximize opportunities to utilize existing un-used capacity for co-digestion to manage organic wastes and increase biogas production

xiii. **SWDA Relevancy:** Feasibility study to evaluate using co-digestion of sewage sludge and food waste to help manage solid waste

Narrative Proposal Work Plan

Criterion 1: Project Summary and Approach (25 points)

The Organics to Energy Co-Digestion Feasibility Study (O2E Study) will evaluate the conversion of existing anaerobic digesters at the Monterey One Water (M1W) wastewater treatment facility to co-digest sewage sludge with food and other organic wastes diverted by its neighbor and partner the Monterey Regional Waste Management District (MRWMD).

A. Scope of Work

The O2E Study will be led by M1W with support from MRWMD. The objective of the project is to identify strategies for using food waste and organic materials to 1) optimize un-used assets to increase the use of anaerobic digestion; 2) expand biogas generation for productive use; and 3) support federal and state initiatives to create a cleaner, safer environment. To successfully execute the O2E Study and meet the project objective, eight key tasks have been identified.

Task 1 – Project Commencement
• Compose a clear Request for Proposals to select a qualified consultant to conduct the Study • Schedule and conduct a project kick-off meeting to establish expectations from each party • Identify existing resources and data in addition to those metrics that need to be quantified

Task 2 – Quantify and Characterize Food Waste
• Summarize the sources, quantity, and characteristics of available organic materials • Determine requirements for pre-treatment of the organics feed material

Task 3 – Existing Infrastructure and Process Assessment
• Review and evaluate existing capital at M1W and MRWMD facilities • Evaluate the current and projected energy demands at M1W and MRWMD including heat, electricity, and vehicle fuel • Evaluate condition of existing technology and process assets • Review footprint and location of primary and accessory equipment • Evaluate biosolids plan to identify impacts from increased digestion and co-digestion • Quantify the methane and solids production from existing anaerobic digestion

Task 4 – Digester Improvements for Food Waste
• Define opportunities and constraints to maximize un-used capacity for co-digestion • Determine suitable technologies for the pre-processing of feedstock and co-digestion • Identify required modifications to M1W's digesters to increase and enhance capacity • Identify beneficial opportunities for digestate/biosolids • Quantify the methane and solids production from co-digestion

Task 5 – Evaluate Alternative or Hybrid Solutions
• Evaluate dedication of one digester to food waste only, including suitable technologies, and opportunities for digestate production vs combined use • Evaluate alternative or other solutions to process both wet and dry feedstocks

Task 6 – Biogas Utilization and Optimization
• Evaluate existing co-generation system, including engine consumption and boiler consumption based on increased biogas production rates • Identify technologies and system upgrades for converting biogas to all needed energy types (heat, rCNG, onsite electricity production, export to grid, etc.)

Task 7 – Permitting and Program Financials
• Identify permitting needs for co-digestion and alternative processes • Evaluate economic value of co-digestion by-products, alternative or hybrid solutions, and overall project feasibility • Develop preliminary capital costs and expected payback period for the project • Develop preliminary annual operating costs • Identify potential funding sources and incentives

Task 8 – Organics to Energy Feasibility Study
• Produce a final O2E Feasibility Study which meets the project objective and quantifies the anticipated environmental benefits

Work Product and Deliverables: The primary output of this project will be a Final Report presenting the findings from the O2E Study. The assumptions, methodology, analysis, and results from the key tasks will be used to produce the following O2E Study deliverables:

- Workshop for M1W, MRWMD, and identified stakeholders to review initial findings
- Draft report for review and comment by M1W and MRWMD
- Board-level presentation for M1W and MRWMD to share at their public meetings
- Final Report incorporating M1W's and MRWMD's comments

B. EPA Strategic Plan Linkage

The O2E Study is an example of a replicable project that will lead to a cleaner, safer, and healthier environment. This specifically aligns with the below objectives in the FY 2018-2022 U.S. EPA Strategic Plan.

1.1 Improve Air Quality: Diverting organics from the local landfill will reduce fugitive emissions. The landfill's fugitive emissions contain about 50% methane, a direct contributor to global warming. Increased anaerobic digestion will reduce fugitive methane emissions and increase renewable energy production, decreasing the partners' reliance on commercial power.

1.2 Provide for Clean and Safe Water: Monterey County is isolated from state and federal water systems, making the area acutely dependent on its groundwater. Protecting this critical and limited water resource helps ensure the community has access to clean, safe water. Preventing food and organic wastes from decomposing in the landfill will prevent associated contaminants from leaching into the area's groundwater. In addition, M1W operates a water recycling facility that provides 3,500 acre feet of potable water each year. Increased anaerobic digestion will lead to increased renewable energy to power this critical facility, helping ensure this important water supply remains a sustainable water resource for the community.

1.3 Revitalize Land and Prevent Contamination: Landfills require significant space to manage solid waste processing, treatment, and disposal. Operational processes can adversely impact surrounding communities, such as noise, odors, and traffic activity. By diverting organics for anaerobic digestion, landfill disposal capacity can be conserved to increase the life of the facility and therefore defer the use of other lands and adverse impacts for decades.

C. Measuring Environmental Results: Anticipated Outcomes and Outputs

To help determine feasibility, the O2E Study will provide a quantitative analysis of environmental impacts and the results of using anaerobic digestion to manage organic wastes and expand green energy production.

Anticipated Output

The primary output of this project will be a Final Report presenting the findings from the O2E Study, which will quantify future environmental outputs resulting from the implementation of co-digestion, including but not limited to the following:

- Estimated tons of organic waste to be diverted from the landfill to the anaerobic digesters
- Estimated volume of biogas (standard cubic feet) to be produced annually
- Estimated volume of biogas (standard cubic feet) to be used rather than flared
- Estimated increase in renewable power generation
- Estimated dollars saved each month due to reduced electricity costs
- Payback period for implementation of various options

Anticipated Outcomes

Completion of the O2E Study is just the beginning for M1W and MRWMD. The partners are committed to advancing the strategies identified in the Study to create tangible environmental and community benefits. Post-study action will result in two types of measurable outcomes: 1) Implementation and 2) Environmental.

Implementation Steps

- Design and construction of recommendations identified in the O2E Study
- Pursuit of identified funding opportunities to help finance required capital investments
- Development of Operations Optimization Plan and long-term Fiscal Sustainability Plan

Environmental Benefits

- Increased capacity at the landfill from the redirection of organics for anaerobic digestion
- Conventional energy conserved due to increased green energy produced via co-digestion
- Tons of greenhouse gases reduced
- Dollar value of biogas generated and captured for productive uses, such as in combined heat and power
- Increased public and peer understanding of the opportunities for anaerobic digestion due to project outreach and presentations at industry conferences

Plan for Achieving Project Results

To ensure the O2E Study quantifies or produces the anticipated output and outcomes, the following strategies and resources will be used:

- Joint development of a clear and detailed Request for Proposal and collaborative evaluation process to ensure selection of the most qualified consultant

- Federal tools like EPA's Managing and Transforming Waste Streams Tool, Greenhouse Gas Equivalencies Calculator, and Permitting Tool Kit for Food Waste Anaerobic Digesters
- State tools like the CalRecycle Waste Characterization Studies
- Consultation and information from existing entities utilizing using food waste as feedstock for anaerobic digestion, including their feasibility studies (e.g., Fort Collins, CO; Austin, TX; San Jose, CA; and Berkeley, CA)
- Integration of any capital improvements with M1W's existing supervisory control and data acquisition (SCADA) network to ensure future and historic data can be easily accessed, exported, and analyzed

D. Time Schedule

Major Activities/Milestones		**Timeline**
Issue Request for Proposals and Select Consultant		Mar – Apr 2022
Task 1	Project Commencement	May 2022
Task 2	Food Waste Assessment (Quantity and Characterization)	May – June 2022
Task 3	Assessment of Existing Infrastructure and Processes	May – Aug 2022
Task 4	Identification of Capital Improvements for Co-Digestion	May – Aug 2022
Task 5	Evaluation of Alternative Strategies or Hybrid Solutions	June – Aug 2022
Task 6	Plan for Biogas Utilization and Optimization	Aug – Sept 2022
Task 7	Plan for Permitting and Development of Program Financials	May – Sept 2022
Task 8	Development and Presentation of Final Report of O2E Study	Oct 2022

Criterion 2: Environmental Justice (20 points)

M1W and MRWMD serve multiple communities faced with economic, health, and environmental burdens, as identified by the Cal OEHHA CalEnviroScreen. In the two entities' service areas, six Census tracks are in the top 25% for worst pollution-burdened communities and 11 Census tracks are in the top 25% for most vulnerable communities. These tracks run throughout the city of Salinas, city of Seaside, and community of Castroville, which combine to represent approximately 200,000 people. Common challenges to these areas include groundwater threats, cleanup sites, impaired water bodies, solid waste sites, pesticide use, full education attainment, linguistic isolation, asthma, poverty, and low-income to high housing costs.

A. Community Benefits for All

The O2E Study will help ensure operations at M1W and MRWMD do not exacerbate the above challenges. Specifically, the decomposition of food waste and organic materials can lead to groundwater threats and, over time, a need for more land if solid waste volumes increase.

M1W and MRWMD also anticipate cost savings related to the decrease in grid power usage. As public entities, fees can only represent the cost to deliver service. Any cost savings will directly benefit all customers by lowering rates. A decrease in grid power usage also helps all communities, including disadvantaged and vulnerable populations, throughout California as the State's energy demands are met by a regional operating system – California ISO. As the strategies identified in the O2E Study are implemented, M1Wand MRWMD will free up more power for the California ISO.

Further, the O2E Study is designed to strengthen the resiliency of operations at both facilities with expanded biogas production. This will help ensure the above disadvantaged communities

have reliable access to essential public health and environmental services, including wastewater and solid waste collection and treatment. It will also assist in protecting the human right to water in these communities. Monterey County is isolated from state and regional water supplies and relies heavily on groundwater to serve the potable water needs of its residents and businesses. If wastewater service is interrupted due to power loss, an overflow into the environment can occur and lead to water quality impacts. In addition, operational resiliency strengthens M1W's water reuse facilities and helps ensure the Agency continues to diversify and support the area's water supply portfolio through recycled water production for agricultural irrigation and groundwater replenishment of a potable water source.

B. Wide Community Engagement

As public entities, both M1W and MRWMD have clear and open public processes for sharing projects and receiving public input. In addition, the entities will work with a range of local organizations, nonprofits, business associations, and regulatory bodies to present on this Project and the benefits it will create for the community. Monterey County has a diverse population so presentations will be coupled with social media and other multi-media outlets to ensure wide conversation and feedback can be collected. Bi-lingual Spanish support is also available on the M1W website and during public meetings for greater inclusion in the public process.

The above plans for gathering input will be critical as the O2E Study evaluates if pre-processing of the feedstock is required to maximize co-digestion. If these results identify needed changes in the way community members dispose of organics, it will be important to engage with diverse populations and gather feedback on the potential impacts of these changes. While the O2E Study is a technical, expert driven effort, all outreach efforts will rework the information for easy public understanding.

Criterion 3: Programmatic Capability and Past Performance (10 points)

M1W is confident in its ability to successfully conduct the O2E Study and to meet the EPA's grant and reporting requirements. Relevant project and staff experience will demonstrate the Agency's ability to manage and complete this project in a timely manner.

A. Past Performance in Completing and Managing Projects

Federal Assistance Agreements
U.S. Bureau of Reclamation (BOR) | Assistance Agreement: R20AP10344 From 2018-2020, M1W was awarded $19,598,985 through the Title XVI Water Reclamation and Reuse grant program for a critical water supply project. <u>Funding Management:</u> Disbursement of funding is expected this fall after M1W successfully worked with BOR staff to complete the Financial Capability Determination and Assistance Agreement. Executing federal agreements and ensuring compliance with federal procedures is complex, and M1W has a dedicated analyst on staff to effectively manage all contracts, agreements, and reporting documents according to funding requirements.

Grant Reporting
California Prop 1 Small Community Wastewater Grant | Grant #: D16-04029 M1W received a grant from the State of California for $2,280,480 to connect a farmworker housing complex to the regional sewer system. Reporting: Starting in 2017, M1W provided eight quarterly reports detailing all project activity, including construction progress, milestones achieved, labor and environmental compliance, expenditures, and any challenges. All reports were submitted on time, including the Project Completion, Final Project, and Fiscal Sustainability Reports in July 2019.

Related Experience
M1W Biosolids Management Plan In 2020, M1W completed a Biosolids Management Plan to evaluate and identify strategies that address the long-term viability of disposing the Agency's biosolids at the local landfill. Project Management: With tightening regulations and a lack of regional biosolids processing facilities, M1W identified a qualified consultant to complete the Plan. Engineering staff managed all aspects of the project, including close coordination with the consultant to collect required data, keep the project on schedule, provide feedback on draft documents, and monitor expenditures to stay within the $35,000 budget.

B. Organizational Experience and Plan for Project Completion

The below project leaders have been identified to ensure all objectives and anticipated output and outcomes of the O2E Study are met.

Engineering Manager (M1W): Jennifer Gonzalez, P.E. – Jennifer has over 25 years of experience in civil engineering and the management of public works projects. She strategically plans and prepares for needed and future capital improvements of M1W assets. Most recently, she oversaw the completion of M1W's Biosolids Management Plan.

Director of Engineering and Compliance (MRWMD): Guy Petraborg, P.E., G.E. – Guy has over 25 years of experience in civil and environmental engineering. His extensive knowledge of waste processing methods, asset design and construction, biogas production, and alternative fuel projects will bring valuable expertise to the O2E Study.

Grants/Management Analyst (M1W): Yohana Vargas – Yohana brings an analytical and organizational skill set to the careful management of M1W's funding opportunities. She has over 20 years in finance and policy with experience executing contracts and ensuring the timely submittal of funding reports. She will ensure execution of the O2E Study meets all federal requirements and the EPA's reporting deadlines.

Criterion 4: Effective Partnerships (10 points)

A. Partnership Description

M1W and MRWMD respectively manage wastewater and non-hazardous solid wastes. As neighbors, the public entities have effectively worked together on various efforts, including biosolids disposal and energy efficiencies, and they are confident in their ability to collaborate. Currently, the partners are planning an island microgrid powered by an onsite portfolio of renewable energy sources. Findings from the O2E Study are expected to bring flexibility to the microgrid concept, moving both entities closer to eliminating their reliance on grid power.

The O2E Study will target each entity's expertise, and its success will be modeled after decades of working together, including:

- An established Joint Board Subcommittee to review topics of interesting and build interagency consensus
- Coordinated maintenance and improvements of their adjoining land
- Successful implementation of shared services to reduce redundant expenses

Monterey One Water (M1W or Agency): Like the EPA, M1W's purpose is to protect public health and the environment. This mission has developed beyond wastewater treatment to effective, multi-entity resource recovery efforts. Agency engineering, operations, and environmental compliance staff bring vast knowledge, expertise, and certification to the management of M1W's facilities, including the use of anaerobic digestion for almost 30 years.

Role	The O2E Study will assess the feasibility of co-digestion in M1W's anaerobic digesters. Agency staff will therefore lead all project components. This includes assisting the consultant with data collection, monitoring expenditures, and ensuring successful completion of the O2E Study.

Monterey Regional Waste Management District (MRWMD or District): MRWMD has extensive experience in collecting and processing organic waste. For more than a decade, the District has pilot-tested various organic waste processing methods: windrow composting with and without food waste; biosolids co-composting; food waste dry anaerobic digestion; and covered aerated static pile composting with and without food waste.

Role	MRWMD will provide valuable support, including knowledge and expertise in food waste and organics; reviewing and providing input on the Request for Proposals; working with the consultant to measure required data; reviewing and providing input on the draft findings and recommendations; and preparing to implement the final findings and recommendations.

B. Organization Location in the Community

The O2E Study will benefit the local communities served by M1W's wastewater and water recycling services and MRWMD's solid waste management services. Specifically, M1W and MRWMD are co-located on almost 600 acres of land along the Central Coast of California in northwestern Monterey County. Collectively, they serve 300,000 residents and businesses in northern Monterey County and additional organics customers from neighboring Santa Cruz and San Benito Counties.

Together, M1W and MRWMD plan to help the region reduce its greenhouse gas footprint and create a more sustainable environment for current and future generations. This shared accountability and innovation will create a model of using local resources to address local issues in the interest of local benefits.

Criterion 5: Budget and Expenditure of Awarded Grant Funds (10 points)

Please see Budget Table and Description

Criterion 6: Congressional Direction (10 points)

The O2E Study will assist M1W and MRWMD in sound planning consistent with state and local mandates, policies, and priorities related to the sustainable management of organic wastes.

State

The O2E Study will respond to the following mandates by identifying the technologies required to divert food waste and other organic materials from MRWMD to M1W for co-digestion and biogas production.

- **California Integrated Waste Management Act (AB 939):** Mandates an integrated framework for local entities to implement solid waste planning programs and facility compliance to decrease the amount of waste being disposed.
- **Mandatory Organics Recycling (AB 1826):** Requires businesses and local jurisdictions to implement organic waste recycling programs to divert organic waste generated by businesses and multifamily residential dwellings.
- **Mandatory Commercial Recycling Bill (AB 341):** Requires commercial and public entities who generate four or more cubic yards per week of waste and multi-family residences with five or more units to adopt recycling practices.
- **Short-Lived Climate Pollutants Act (SB 1383):** Establishes a 50% reduction in the disposal of organic waste from the 2014 level by 2020 and a 75% reduction by 2025; as well as a 20% recovery of currently disposed edible food by 2025.

The following state mandate aims to reduce greenhouse gas emissions. The O2E Study focuses on the removal of decaying organics from the landfill and an increase in biogas production, both tactics that will help decrease greenhouse gas emissions from M1W and MRWMD operations.

- **Global Warming Solutions Act of 2006 (AB 32**): AB 32 tangibly fights global warming by establishing comprehensive programs to reduce greenhouse gas emissions from all sources throughout the state, including landfills.

An important element of the O2E Study is establishing a plan for biogas utilization and optimization. Expanded renewable energy production will proportionately reduce M1W's and MRWMD's commercial power demand.

- **100% Clean Energy Bill (SB 100):** Sets California on a path to 100% renewable energy by 2045, and also creates thousands of high-quality jobs while reducing pollution that warms the planet and harms California's residents.
- **California Emergency Proclamation:** Issued by Governor Newsom on July 30, 2021, this state of emergency was declared in response to the extreme climate events occurring throughout the western United States. A goal of the proclamation is to expedite clean energy projects and relieve demand on the electrical grid during extreme weather events.

Local Efforts

- County of Monterey – Municipal Climate Action Plan
  The County of Monterey adopted its Municipal Climate Action Plan in 2013. As part of the County's plan to meet the established 2030 goals, the Board of Supervisors has set a 2022 deadline for creating and considering adoption of a Community Climate Action Plan. The Community Action Plan will lay out strategies to reduce greenhouse gas emissions by 40% from 1990 levels by the year 2030. M1W is actively working with the County and its Sustainability Program on this task, including efforts on increased anaerobic digestion and the possibility of a renewable energy microgrid to decrease emissions at M1W and MRWMD.

Criterion 7: Transferability (5 points)

Historically, projects like the O2E Study have been pursued in larger, urban areas. This Project will demonstrate how smaller, less-developed communities and/or communities with significant commercial agricultural production can establish partnerships to generate renewable energy. In preparing for new concepts, like co-digestion, M1W staff members review similar work done by industry peers. This Project can be a similar resource as other entities work to determine the feasibility of converting organics to energy.

The results of the O2E study will be readily and publicly available on both M1W's and MRWMD's websites. The partners will also promote the results through their industry connections and channels, like newsletters and public presentations. Both M1W and MRWMD are active within their sectors and participate regularly on conference panels and association committees. Utilizing these diverse avenues to share the final O2E Study will allow others to apply the formulas and findings to their projects or spread awareness of the benefits associated with using anaerobic digestion to manage organic wastes. Especially for similarly situated communities, the Study will provide strategies for co-digestion and other data that can be used to explore the possibility of realizing similar environmental and community benefits.

In addition, the O2E Study will present economic incentives of increased anaerobic digestion and biogas production which may encourage others to pursue similar analyses and implementation projects. The payback period will be evaluated and will serve as an example of a cost-benefit analysis, a key component in the realization of the environmental benefits.

Criterion 8: Project Sustainability (5 points)

The O2E Study is the first step in the M1W and MRWMD expanded partnership. Once the Study is complete, both entities are committed to implementing the findings and recommendations to meet regulatory mandates, to create regional environmental benefits, and to reduce customer rates as much as possible. This process will include:

- Creating an interagency energy resource management and funding team focused on securing required fiscal resources (grants, loans, rebates) to increase anaerobic digestion, biogas production, and organics diversion.
- M1W and MRWMD engineering teams working together on the design and construction of required capital enhancements and new infrastructure to meet the identified performance measurements.
- Conducting and assisting member jurisdictions in providing outreach and education on organics recycling to all residents and businesses.

- Presentation of the Study's findings throughout the community, in industry publications, and at conferences.

Criterion 9: Novel Approaches (5 points)

M1W and MRWMD are committed to pursuing sustainable and resilient projects that create a cleaner environment and diverse benefits for their region. To do this, the entities recognize they must think outside of the box and utilize creative approaches to maximize their resource recovery.

- **National Renewable Energy Laboratory (NREL):** In 2021, M1W applied for and received a NREL technical assistance grant through the Bioenergy Technologies Office within the U.S. Department of Energy. This opportunity will give M1W 40 hours of NREL staff time to help advance its waste-to-energy efforts. This includes providing additional resources for the O2E Study as well as extensive experience working with public entities to innovate and evaluate novel approaches to turning organic waste into valuable resources. M1W and MRWMD will continue to pursue opportunities like this technical assistance grant to ensure they identify the best technologies to maximize green energy extraction while minimizing greenhouse gas output.

- **Monterey Microgrid Project:** The O2E Study is part of a larger effort by M1W and MRWMD to establish an island microgrid that will eliminate their reliance on traditional grid power. Implementing the Monterey Microgrid Project will secure the level of energy resilience that their critical, 24/7 operations require, even during climate-related power outages. This type of innovation will demonstrate to other coastal communities the benefits of resilient power solutions and the power of regional collaboration. As M1W and MRWMD share the findings of the O2E Study with their industry peers, it will also highlight how anaerobic digestion can play a critical role in larger energy efforts like the Monterey Microgrid Project.

- **Connecting with Local Research Institutions:** Stanford University is located about 90 minutes from M1W and MRWMD. The world-renowned research university is also in the process of establishing a microgrid to power its campus and is interested in learning from the Monterey Microgrid Project. M1W and MRWMD have connected with staff at Stanford University where research is already underway to study the biodegradability of organics streams such as food waste, yard waste, paper waste that cannot be recycled, and various woody wastes to help determine the optimal processes for energy generation, including wet anaerobic digestion, dry anaerobic digestion, and thermal conversion technologies. Utilizing each other's research may lead to published papers that will help further encourage and support using anaerobic digestion for sustainable management of organics.

List of Attachments

A. Project Milestones

B. 6 Letters of Support: U.S. Congressman J. Panetta; CA State Senator J. Laird; Monterey County Supervisor W. Root Askew; M1W Board Chair M. Carbone; MRWMD Board Chair J. Campbell; G. Darling – H2O Consulting

BUDGET TABLE AND DESCRIPTION

The total estimated cost for the O2E Study is $313,692.10 which is based on previous but similar work. **M1W requests EPA grant funding in the amount of $169,054.35** to cover the contractual portion of the scope of work and salary costs for the administration of the grant.

Budget Table: O2E Study

I. Salary and Wages			
Name	**Monthly Rate**	**Time Allocated x 7 Months**	**Total**
M1W Staff			
Engineering Manager	$ 15,179.12	0.33	$ 35,063.77
Associate Engineer	$ 11,672.00	0.33	$ 26,962.32
Grants/Management Analyst	$ 9,028.20	0.25	$ 15,799.35
		Subtotal	$ 77,825.44
MRWMD Staff			
General Manager	$ 18,731.36	0.02	$ 2,622.39
Director of Operations	$ 16,274.53	0.11	$ 15,531.39
Director of Engineering & Compliance	$ 15,986.05	0.22	$ 24,618.53
		Subtotal	$ 39,772.30
		TOTAL SALARY AND WAGES	**$ 117,597.74**
II. Fringe Benefits			
Fringe Benefits	**Fringe Rate**		**Total**
M1W Staff			
Engineering Manager	48%		$ 16,830.61
Associate Engineer	50%		$ 13,481.16
Grants/Management Analyst	38%		$ 6,003.75
	Subtotal		$ 36,315.52
MRWMD Staff			
General Manager	29%		$ 760.49
Director of Operations	33%		$ 4,135.36
Director of Engineering & Compliance	31%		$ 7,631.74
	Subtotal		$ 12,527.59
	TOTAL FRINGE BENEFITS		**$ 48,843.11**
III. Travel – N/A			
IV. Equipment – N/A			
V. Supplies – N/A			
VI. Contractual			
See budget justification			$ 147,251.25
		TOTAL CONTRACTUAL	**$ 147,251.25**
VII. Other – N/A			
		TOTAL COST: O2E STUDY	**$ 313,692.10**

For project management and elements not funded through this grant opportunity, M1W and MRWMD are executing a cost-sharing agreement which both agencies understand must comply with the grant regulations described in 2 CFR 200.306.

Budget Description:

TOTAL PROJECT COST: $313,692.10

TOTAL EPA FUNDING REQUESTED: $169,054.35

Salary and Wages (M1W Grants/Management Analyst)	$ 15,799.35
Fringe Benefits (M1W Grants/Management Analyst)	$ 6,003.75
Contractual Costs (All)	$ 147,251.25
Total EPA Funding Request	**$ 169,054.35**

I. Salary and Wages

Staff salaries represent the time dedicated to managing and overseeing the O2E Study, collaborating with the consultant during the data collection and facility assessment, reviewing and providing comments to the consultant on the draft report, and ensuring timely and successful completion of the Project. Both agencies pay the same rates for activities that are not federally funded, and the rates are consistent with the market rates for the positions listed. As this is a priority project for both M1W and MRWMD, the only salary included the EPA Funding Request is for the Grants/Management Analyst who will administer the grant and ensure compliance with all procedural and reporting requirements.

Salary and Wages EPA Funding Request:

Name	Monthly Rate	Time Allocated x 7 Months	Total
M1W Grants/Management Analyst	$ 9,028.20	0.25	$ 15,799.35
TOTAL SALARY AND WAGES: EPA Funding Request			**$ 15,799.35**

Salary and Wages M1W/MRWMD Cost-Share:

Name	Monthly Rate	Time Allocated x 7 Months	Total
M1W Staff			
Engineering Manager	$ 15,179.12	0.33	$ 35,063.77
Associate Engineer	$ 11,672.00	0.33	$ 26,962.32
		Subtotal	$ 62,026.09
MRWMD Staff			
General Manager	$ 18,731.36	0.02	$ 2,622.39
Director of Operations	$ 16,274.53	0.11	$ 12,531.39
Director of Engineering & Compliance	$ 15,986.05	0.22	$ 24,618.52
		Subtotal	$ 39,772.30
TOTAL SALARY AND WAGES: Cost-Share			**$ 101,798.39**

II. Fringe Benefits

Fringe benefits are calculated as a percentage of an employee's salary and include the following: Employee and Employer Retirement Contribution (PERS); Employee Assistance Program (EAP); Health Insurance; Dental Insurance; LTD Insurance; Life Insurance; Retiree Medical; Workers Compensation; Vision Benefit; Medicate; Vacation; Administrative Leave; and Sick Leave.

Fringe Benefits EPA Funding Request:

Fringe Benefits	Fringe Rate	Total
M1W Grants/Management Analyst	38%	$ 6,003.75
TOTAL FRINGE BENEFITS: EPA Funding Request		**$ 6,003.75**

Fringe Benefits M1W/MRWMD Cost-Share:

Fringe Benefits	Fringe Rate	Total
M1W Staff		
Engineering Manager	48%	$ 16,830.61
Associate Engineer	50%	$ 13,481.16
	Subtotal	$ 30,311.77
MRWMD Staff		
General Manager	29%	$ 760.49
Director of Operations	33%	$ 4,135.36
Director of Engineering & Compliance	31%	$ 7,631.74
	Subtotal	$ 12,527.59
TOTAL FRINGE BENEFITS: Cost-Share		**$ 42,839.36**

III. – V. Travel, Equipment, Supplies: N/A

VI. Contractual

$147,251.25 is requested for contractual funding to complete the O2E Study. M1W will hire a consultant to conduct the feasibility study and bring the required technical expertise to the project. To select the most qualified firm, M1W will publicize a Request for Proposals (RFP) following the protocols stated in the M1W Procurement Policy and any additional federal procurement requirements. These costs are reasonable because the consulting contract will be awarded competitively in accordance with M1W's RFP guidelines. The evaluation of proposals and selection of a consulting firm will be based on qualifications. Cost proposals will be submitted separately and will not be reviewed until a preliminary selection is made based on technical merits. Evaluation and ranking of professional service proposals will be done by a committee of M1W and MRWMD staff. The contract will be awarded to the responsible firm whose proposal is the most advantageous to the objectives of the O2E Study, with price considered after qualifications. M1W understands the consultant rate must comply with the restrictions on consultant fees described in 2CFR 1500.10 – General Procurement Standards. All contractual costs are included in M1W's EPA funding request as they directly relate to successful completion of the O2E Study and fulfillment of the Study's objectives and deliverables.

Contractual EPA Funding Request:

Contractual Services	Cost
1. Project Commencement, Management, Quality Control, and Meetings	$ 18,266.00
2. Food Waste Assessment (Quantity and Characterization)	$ 12,177.00
Anticipated Output: • Estimated tons of organic waste to be diverted from the landfill to the anaerobic digesters	
3. Assessment of Existing Infrastructure and Processes	$ 30,442.50
4. Identification of Capital Improvements for Co-Digestion	$ 21,309.75
Anticipated Output: • Estimated volume of biogas to be produced annually • Estimated volume of biogas to be used rather than flared	
5. Evaluation of Alternative Strategies or Hybrid Solutions	$ 14,613.00
6. Plan for Biogas Utilization and Optimization	$ 20,000.00
Anticipated Output: • Estimated increase in renewable power generation	
7. Plan for Permitting and Development of Program Financials	$ 12,177.00
Anticipated Output: • Estimated dollars saved each month due to reduced electricity costs • Payback period for implementation of various options	
8. Development and Presentation of Final Report of O2E Study	$ 18,266.00
Key Deliverables: • Workshop to review initial findings with M1W, MRWMD, and stakeholders • Draft report for review and comment by M1W and MRWMD • Board-level presentation to share at M1W and MRWMD public meetings • Final Report incorporating M1W's and MRWMD's comments	
TOTAL CONTRACTUAL COSTS: EPA Funding Request	**$147,251.25**

VII. Other: N/A

Measures to Ensure the Budget is Spent Effectively and in a Timely Manner:

To ensure all grant activities are carried out as planned, M1W created and implemented a Grant Administration Policy. M1W monitors grants in several ways, including:

- Reviewing project expenditures no less than monthly to ensure charges are valid
- Ensuring timely and accurate submittal of all progress and final reports
- Accurately recording all matching requirements
- Providing authorization, documentation, special conditions, or language as required by the purchasing division for purchases needed to carry out the requirements of the grant

Procedures and Controls

- Each year, M1W prepares a Comprehensive Annual Financial Report (Annual Report) – a thorough and detailed look at the Agency's financial condition, including an unmodified review by an independent auditor.
- The Agency has two outstanding bonds secured by wastewater system revenues in addition to an existing State Revolving Fund loan for the first phase of a water supply project. The two bonds are currently rated "AA3" by Moody's Investors Services and "A+" by Standard & Poor's. This rating reflects M1W's strong financial management.